

## CLAIMS

1. Optical alignment system comprising an optical board connector (8) with a ferrule assembly (9) terminating a plurality of optical fibres (40) and a circuit board (3) comprising a cavity (50) for at least one embedded device (4), said circuit board (3) comprising first positioning elements (52)

**characterized in that**

said circuit board (3) comprises a plate (51) exposing said cavity (50) and having an accurate position with respect to said cavity (50) and said ferrule assembly (9) comprises second positioning elements (24) adapted to cooperate with said first positioning elements (52) made available by said plate (51) to align said terminated optical fibres (40) and said embedded device (4).

2. Optical alignment system according to claim 1, wherein said first positioning elements (52) are provided as separate elements on or within said circuit board (3).

3. Optical alignment system according to claim 2, wherein said plate (51) comprises holes (53) adapted to cooperate with said first positioning elements (24) and to position said plate (51) with respect to said cavity (50).

4. Optical alignment system according to claim 1, wherein said plate (51) comprises said first positioning means (52) as alignment pins or holes.

5. Optical alignment system according to claim 4, wherein said alignment pins (52) protrude into said circuit board (3).

6. Optical alignment system according to any one of the preceding claims, wherein said plurality of optical fibres (40) constitutes a high density array and said second positioning elements (24) comprise three alignment pins or holes positioned with respect to the centre (C) of said array.

7. Optical alignment system according to any one of the preceding claims, wherein said circuit board (3) comprises a housing (60) for said embedded device (4) adapted to pre-position said optical board connector (8).

8. Optical alignment system according to any one of the preceding claims, wherein said ferrule assembly (9) is movably contained by said optical board connector (8).

5 9. Optical alignment system according to any one of the preceding claims, wherein said ferrule assembly (9) comprises a ferrule plate (10) protruding from said board connector (8) within said cavity (50).

10 10. Optical alignment system according to any one of the preceding claims, wherein said plurality of optical fibres (40) constitutes a two-dimensional array of optical fibres.

15 11. Optical alignment system according to any one of the preceding claims, wherein said ferrule assembly (9) comprises holes (20) for terminating said optical fibres (40), said holes (20) comprising at least one substantially straight edge (21).

20 12. Optical alignment system comprising an optical board connector (8) with a ferrule assembly (9) terminating a plurality of optical fibres (40) and a circuit board (3) comprising a cavity (50) for at least one embedded device (4), said circuit board (3) comprising first positioning elements (52), wherein said ferrule assembly (9) is movably contained by said optical board connector (8) and comprises second positioning elements (24) adapted to cooperate with said first positioning elements (52) to align said terminated optical fibres (40) and  
25 said embedded device (4).

13. Ferrule assembly (9) comprising second positioning elements (24) for use in a system according to any one of the preceding claims.

30 14. Plate (51) adapted to make available first positioning elements (52) for use in a system according to any one of the preceding claims.

35 15. Method for aligning an optical board connector (8) with terminated optical fibres (40) and a circuit board (3) comprising first positioning elements (52) and a cavity (50) for at least one embedded device (4) comprising the steps of:

- providing a plate (51) with an opening exposing said embedded device (4) and positioning said plate (51) with respect

to said cavity (50) such that said first positioning elements (52) remain available;

- positioning said board connector (8) onto said plate (51) and aligning said optical fibres (40) with said embedded device (4) by having second positioning elements (24) of said board connector (8) cooperating with said first positioning elements (52).